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Removal of Lead in High Rate Activated Sludge System

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Abstract : The heavy metals pollution in water, sediments and fish of Lake Manzala affected from the disposal of wastewater, industrial and agricultural drainage water into the lake on the environmental situation. A pilot plant with an industrial discharge flow of 135L/h was designed according to the activated sludge plant to simulate between the biological and chemical treatment with the addition of alum to the aeration tank with dosages of 100, 150, 200, and 250 mg/L. The industrial discharge had concentrations of Lead and BOD5 with an average range 1.22, 145mg/L, respectively. That means the average Pb was high up to 25 times than the allowed permissible concentration. The optimization of the chemical-biological process using 200mg/L alum dosage compared has improvement of Lead and BOD5 removal efficiency to 61.76% and 56%, respectively.

Keywords : industrial wastewater, activated sludge, BOD5, lead, alum salt
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